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United States Department of Agriculture,

BUREAU OF ENTOMOLOGY,

L. O. HOWARD, Entomologist and Chief of Bureau.

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THE MANGO WEEVIL.

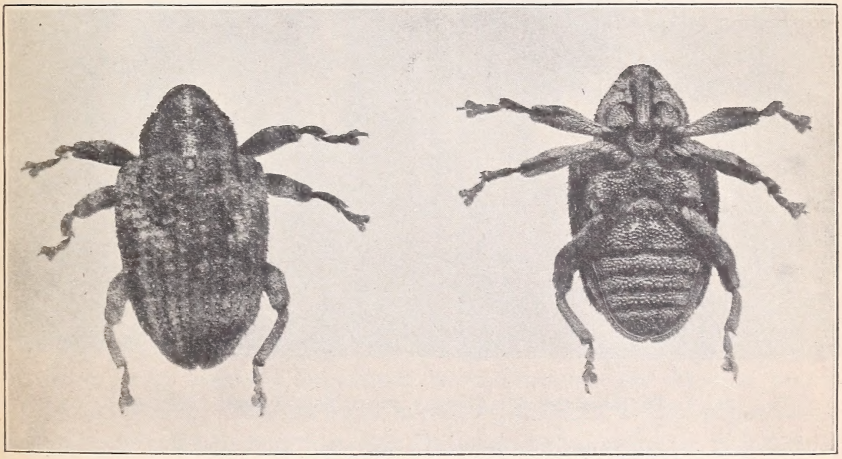
(*Cryptorhynchus mangiferæ* Fab.)

By C. L. MARLATT,

Entomologist and Acting Chief in Absence of Chief.

The prospective mango industry of Florida is jeopardized. The mango weevil is likely to be introduced in the seeds of the mango. Shipments of mango seeds now coming to this country are largely infested with this weevil. Introductions of any mango seed or fruit into mango-growing districts are attended with the gravest danger. The precautions indicated in this circular should be strictly carried out.

The most serious insect pest of the mango in oriental countries is the mango weevil (*Cryptorhynchus mangiferæ* Fab.) (fig. 1). This weevil



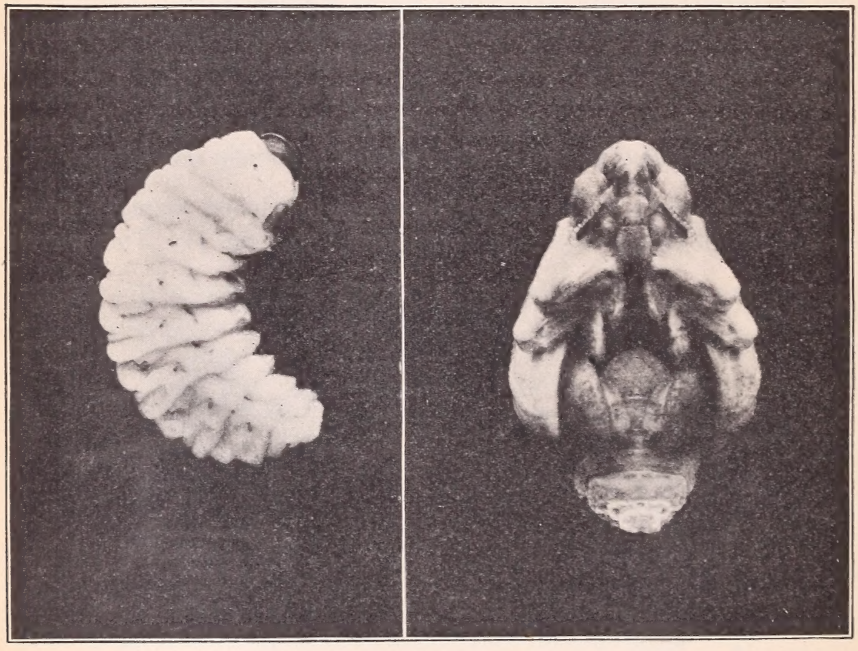
a *b*

FIG. 1.—The mango weevil (*Cryptorhynchus mangiferæ*): *a*, Adult weevil, from above; *b*, same, from below. Much enlarged. (Original.)

is related to the boll weevil and the chestnut weevil, and this, aside from its well-known destructive work on the mangoes, is sufficient indication of its undesirability. It is probably of Indian or at least of oriental origin, and has already obtained foothold in most of the important mango-growing countries, being carried readily with seed for planting. It now inhabits all of the mango regions bordering on the Indian Ocean and adjacent islands, and occurs throughout the East Indies,

including the Philippines and other groups of South Pacific islands. It has gained foothold similarly in South Africa and Madagascar and numerous other points. Fortunately this country is so far free from this pest, and if it can be kept out the mango industry which it is hoped to develop in Florida and perhaps in the other warmer parts of this country can be given a very great advantage over other mango-producing regions of the world. The insect in its different stages is illustrated, much enlarged, in figures 1 and 2, from photographs by Mr. J. G. Sanders, formerly of this bureau.

As already indicated, this mango pest belongs to the weevil family. The egg is deposited in the fleshy part of the fruit, and the young



a *b*

FIG. 2.—The mango weevil: *a*, Larva; *b*, pupa. Much enlarged. (Original.)

grub (fig. 2, *a*) burrows at once into the seed pod and develops in the seed to a pupa (fig. 2, *b*) and finally to the adult, weevil, or beetle (fig. 1). The green mango soon heals up over the egg slit, and there is very little, if any, exterior indication of infestation. The weevil or beetle is about one-fourth of an inch long and dark brown in color. It remains in the seed for some time, and may thus be easily distributed with seed for planting or with the ripened fruit.

Protected as it is within the seed pod and, in fact, within the seed itself within the pod, it is not possible to destroy it by fumigation with any certainty. The only means of determining infestation is in opening the seed pod and removing the paper-like covering of the seed

itself, when normally the gnawing and excrement and discoloration due to the work of the larvæ and weevil can be noted. Therefore all seeds introduced for planting in this country in regions where mangoes are grown should be opened in this manner and all that indicate infestation should be burned. As a matter of further security all the apparently sound seeds should be germinated in a box under a wire screen, so that any weevils which may occur in seeds which show no visible sign of infestation may be retained and destroyed. The danger is particularly great where, as is now the case, mango seeds are being imported for planting in regions in Florida where fruiting mango trees occur. Where there are no mango trees, or trees of fruiting age, the danger is perhaps negligible, as no other food plant is known for the mango weevil. Still, if large numbers of these weevils should be introduced and liberated, they are long lived and might easily be carried on railway trains to regions where they might find lodgment. It is, therefore, desirable in any case to observe all the precautions indicated.

It has already been stated that this mango weevil is the principal enemy of the mango practically wherever this fruit is grown. In the Hawaiian Islands Mr. D. L. Van Dine, formerly entomologist of the Hawaii Agricultural Experiment Station, reports that during the first year of his examination he found 60 per cent of the mangoes infested and the following year from 80 to 90 per cent, in some instances as many as four larvæ being found in a single seed. While the mango weevil destroys, primarily, the seed of this fruit, it is also believed by growers to hasten the maturity of infested fruit and thus increase the percentage of fallen mangoes.

Inasmuch as this insect passes its entire development within the seed, it is beyond the reach of insecticides and fumigation, and the only remedy which the bureau is able to advise to prevent it from becoming a pest in the United States is to collect and destroy all of the fallen or supposedly infested mangoes.

It is most urgently important now, however, for Florida to keep this weevil out. Mango seeds are now probably being imported into Florida by various growers, and the danger of such importation should be thoroughly understood, and whatever authority the State may have to prevent or control such importations should be put in operation.

Approved:

JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., *May 23, 1911.*

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